



27 November 2020

Energy Security Board
Level 15, 60 Castlereagh Street
Sydney NSW 2000

By email: info@esb.org.au

Vector Limited
101 Carlton Gore Rd
PO BOX 99882
Auckland 1149
New Zealand
+64 9 978 7788 / vector.co.nz

Submission on the ESB's Data Strategy

Introduction

1. This is Vector Limited's (Vector)¹ submission on the Energy Security Board's (ESB) *Data Strategy Consultation Paper* (the consultation paper), dated October 2020.
2. As a leading technology solutions company, Vector supports the promotion of 'data democratisation' by unlocking and optimising the value of data for consumers' benefit in a digitalised energy future. We therefore support, in principle, the ESB's proposed shift – through the proposed Data Strategy – from a regime which prohibits all data disclosure by default to one which authorises protected data sharing where there are safe controls and clear benefits for all energy sector stakeholders.
3. We agree with the ESB's intention to adopt forward-looking, proactive and flexible approaches to progress the Data Strategy. In the rapidly evolving energy sector, arrangements need to be adaptive to new business models that are enabled by new technologies, which on their own create new needs for data.
4. As a metering service provider in Australia's National Electricity Market (NEM), we particularly agree with the ESB's observation that the rollout of advanced meters across the NEM has been very slow. We are concerned that this will delay or stifle the timely achievement of the objectives of the Data Strategy and other ongoing and impending reforms.
5. Advanced metering is a critical enabler of the Data Strategy. In this submission, we identify the barriers to the continued and accelerated rollout of advanced meters, including the 'split incentives' problem we describe below.
6. We recommend a set of regulatory and other measures to address the above barriers, for consideration by the ESB and other energy regulators. We support the ESB's intention to discuss the outcome of this consultation regarding metering issues with the Australian Energy Market Commission (AEMC), which is scheduled to commence a comprehensive review of metering arrangements in December 2020. We trust this process would pave the way for the development of options to address these barriers.

¹ Vector's Australian and New Zealand advanced metering business – Vector Metering – is an accredited Metering Provider and Metering Data Provider, and a registered Metering Coordinator, in Australia's National Electricity Market and the equivalent in New Zealand. Vector Metering provides a cost-effective end-to-end suite of energy metering and control services to energy retailers, distributors and consumers.

Vector is one of New Zealand's largest listed companies and provides energy and technology services across the country, with a vision of *creating a new energy future*. We are the largest provider of electricity and gas distribution network services in New Zealand, and the country's leading provider of advanced metering solutions. We also provide fibre network services, solar PV, energy storage, home energy management solutions, and electric vehicle recharging services.

The proposed Data Strategy

7. Vector supports, in principle, the objective of the proposed Data Strategy, which is effective data management in the national energy market that supports market objectives and drives better consumer outcomes by:
 - a. fostering innovation and flexibility;
 - b. ensuring accountability and trust;
 - c. fostering competitive markets and better consumer outcomes;
 - d. assisting effective operations, planning and decision making; and
 - e. driving better policy and regulatory reform.
8. We consider the four key problems the Data Strategy aims to resolve to be the right issues to prioritise, from the most immediate to the longer term:
 - a. identify priority data gaps, barriers and opportunities to streamline (Pillar 1 – Fit-for-purpose data);
 - b. ensure national energy legislation supports a clear and consistent principles-based approach, aligned with economy-wide data reforms and current needs (Pillar 2 – New data governance principles);
 - c. engage proactive leadership and data stewardship, coordination and collaboration, sharing best practice and capability building (Pillar 3: Drive data leadership, coordination and capability); and
 - d. embed forward-looking, proactive and flexible approaches that support research (Pillar 4 – Data supports ongoing change and adaptability).
9. We generally agree with the Data Strategy’s intention for data sets to be collected, managed and shared in a way that aids efficiency and usability, flexibility, trust and safety, and impact and usefulness. We agree with its focus on practical outcomes that can provide near-term tangible and measurable improvements in a cost-effective way.

Responses to consultation questions

10. As a provider of advanced metering services – a critical enabler of the Data Strategy – our submission broadly provides commentary on most of the questions in the consultation paper, and responds to the following questions or sub-questions, in particular.

HIGH LEVEL QUESTIONS

- a) The strategy’s coverage of the key issues for data reform in the energy sector – are there concerns un-addressed?
- c) Many recommendations to resolve specific data issues are initial proposals, requiring further detailed design, analysis of costs/benefits and development through usual processes. Early stakeholder views on design issues, evidence to support costs/benefits analysis or proposed alternatives are welcome.

Question 1: Data gaps and priorities

Are there key data gaps that we have not identified? Do stakeholders have views on which data issues take priority? Will some of these data issues be resolved by existing processes?

Question 9: Adaptable arrangements

Do stakeholders have views on how to ensure the design of Rules, guidelines and procedures consider the new data principles and the need to adapt more flexibly as technology and data requirements change?

Question 23: LV visibility through metering

Are there additional issues or options that the AEMC should consider in their upcoming metering review?

Question 25: Visible and manageable DER

Are there particular data challenges in future market model designs which have not been recognised? Are there future areas in LV-DER data the Data Strategy should consider?

Advanced metering is a critical enabler of the proposed Data Strategy

11. The benefits of advanced metering are now widely recognised in the energy sector. Among its multiple benefits, advanced metering enables:
 - a. market competition, innovation, and consumer engagement;
 - b. the implementation of reforms that benefit consumers; and
 - c. measures that facilitate recovery from COVID-19.
12. Advanced metering has a critical role to play in bridging the priority gaps identified by the ESB for the immediate term (Pillar 1 – Fit-for-purpose data). These are data gaps in:
 - a. retail transparency;
 - b. understanding consumers and demand; and
 - c. low voltage – distributed energy resource (DER) visibility.
13. It is this critical role that makes it important for the rollout of advanced meters not to be delayed or stifled, so that these gaps can be addressed, and consumer benefits can be delivered in a timely manner.
14. Advanced metering is required to enable consumers to make informed decisions about how and when they use electricity, and take actions such as implementing energy efficiency strategies, shifting demand from peak periods, changing consumption patterns, and generating their own electricity. This provides consumers with the ability and incentives to engage more actively in energy markets, take greater control of their energy use and consumption, and make informed choices on who they share their data with.
15. The ability of retailers to remotely read their customers' consumption in near real-time, enabled by advanced meters, reduces their operational costs and improves the accuracy of their bills for customers. Importantly, advanced meters provide the opportunity for retailers to offer innovative pricing and provide the customer with the choices described above.
16. Advanced metering enables resilience from the impacts of COVID-19. The use of more accurate and real-time data from advanced meters allows service providers to better target their support measures to energy customers in hardship due to COVID-19, ensuring energy affordability and the timely delivery of support for these customers. In addition, the ability of consumers to switch from quarterly to monthly or more frequent billing and payment, enabled by advanced meters, helps those in hardship better manage their power bills and finances.
17. Advanced metering allows the delivery of 'contactless services' (i.e. remote meter reads and remote disconnections and reconnections), protecting the health and safety of metering service providers, their customers, and the public during the pandemic.
18. From a network perspective, advanced metering data provides distribution network service providers (DNSPs) greater visibility of their network, enabling them to respond to outages or potential outages expeditiously. This helps ensure that 'the lights are kept on' and the delivery of essential services is not disrupted during the crisis and recovery period.

19. Using advanced metering data, DNSPs can manage their network more efficiently, for example, through more targeted demand response programmes. Enhanced visibility from advanced metering data improves a network's ability to host increasing numbers of renewable distributed energy generation, avoiding costly new network investment or expansion and contributing to long-term emissions reduction.

Advanced metering is also a critical enabler of other key reforms

20. More broadly, advanced metering underpins policy objectives, including the ESB's post-2025 market design initiatives. As noted by the ESB, there is a great deal of reform under way and many interlinkages between the issues raised in this Data Strategy and ongoing workstreams. The Data Strategy therefore needs to remain aligned with other reforms that aim to advance the long-term interests of consumers.
21. Advanced metering facilitates the move to two-sided markets, for example, through more demand response programmes. It enables the efficient integration of DER to the grid, optimising the value of DER to its producers and consumers. For example, on-demand solar generation data from advanced meters supports decision making around dispatch to virtual power plants.
22. Advanced meters are already enabling key reforms in the NEM, such as the shift from 30-minute to 5-minute settlement in the wholesale electricity market, intended to incentivise the entry of rapid response generation (e.g. solar PV and batteries) to this market. This would be ineffective without a rapid increase in the penetration of advanced meters.
23. Furthermore, advanced meters have a critical role to play in the implementation of the Consumer Data Right (CDR), scheduled to commence in the energy sector in 2021. The CDR would make it easier for consumers to share or authorise the sharing of their data with third parties that they trust. These parties could then use the (more relevant) data for the development of new and innovative services (e.g. TOU pricing, price comparison services, etc), providing greater choice and control to consumers.

The consumer benefits from advanced meters are best delivered in a competitive market

24. In our view, the benefits of advanced meters are best delivered through a competitive market, as envisaged by the Power of Choice reforms. The current competitive market has seen the decline of upfront metering costs to consumers and downward pressure on ongoing metering costs. We believe that incentives for continuous innovation are stronger under a competitive market where metering service providers focus more on delivering improved services to consumers than on regulators.
25. In the long-term, energy consumers would benefit from a competitive metering market through:
 - a. the entry of multiple providers, which would exert competitive pressure on prices. In a competitive market, metering will eventually be provided not only by DNSPs but also by retailers, meter owners, or even end users – supporting data democratisation;
 - b. better services, as competing metering service providers make more attractive offers to obtain the vote of consumers. Greater competition incentivises service providers to focus on delivering new and innovative services to consumers with rising expectations;
 - c. greater choice for consumers, who will have the choice of alternative service providers. Consumers face better tariff choices and can choose a service that can most closely suit their unique circumstances and give them greater control over their energy expenditure. In a competitive market, consumers can switch providers or 'vote with their

feet', incentivising providers to improve their services to retain the loyalty of their customers and attract new ones;

- d. investment risks being borne by investors rather than by consumers. Investors or meter owners face the risk of poor business decisions or wrong technological choice, not consumers (or taxpayers);
 - e. greater incentives to invest in the metering market. With the right incentives, a more open, dynamic and competitive market would attract interested parties who believe they can provide better offerings than those existing in the market; and
 - f. product and service innovation. Metering markets internationally, including in New Zealand, are undergoing rapid change due to the extensive deployment of advanced meters that enable more innovative services, including innovative tariffs. A competitive metering market allows the entry and application of various technologies that meet the varying requirements of consumers.
26. While we recognise that transitions to new technologies can be challenging and are not costless, the New Zealand experience highlights that it is possible to have competitive metering arrangements and positive business cases that meet consumer expectations at the same time. The dynamic efficiency gains from a competitive metering market – driven by incentives for continued innovation and investment – provide a compelling reason for competitive arrangements in metering to be sustained.

There is increasing recognition that advanced metering expectations are not being met

27. There is increasing agreement amongst energy sector stakeholders and regulators that advanced metering expectations are not being met. We agree with the ESB's observation that:
- ...the roll-out to date has been slow in most areas. There are diverse views on how quickly the roll-out will progress and the impact of current incentives and challenges. These views can be debated, but they indicate a level of uncertainty and can impact planning, particularly as we trade off other ways of solving the same problems. This is a central issue for AEMC's upcoming review of metering.²
28. The Power of Choice reforms envisaged the timely transition of consumers to advanced metering through widespread retailer-led rollouts. While intended to be driven by retailers, the adoption of advanced meters benefits all industry participants and consumers.
29. Three years into the introduction of the *Competition in Metering Rule*, Vector expected the reforms to deliver a wide range of benefits to retailers, DNSPs, consumers and new service providers to support future market arrangements. At this stage of market development, we anticipated to see new retail products such as TOU and other innovative pricing, power quality data being sought by DNSPs to enable them to more efficiently manage their networks, and increasing demand for new services from parties such as DER aggregators. To date, we have seen activity in some of these areas but not much in others. We had expected that demand for new services enabled by advanced meters would increase faster than the level we are currently seeing.
30. Our advanced metering business (Vector Metering) had anticipated that, by now, over 500,000 meters per annum would be installed across the competitive metering regions in the NEM. Rather than this anticipated number, competitive Metering Coordinators are currently installing closer to 300,000 advanced meters per annum across the market.

² Page 145 of the consultation paper

31. We expected volumes of 3% to 5% of the legacy metering fleet to be refreshed annually based on a 20 to 30-year asset life. This would represent approximately 200,000 meters per annum or 600,000 meters since the commencement of competitive metering in December 2017. Instead, we believe less than one-third of this number has been released by DNSPs for replacement. Based on this replacement rate, the legacy metering fleet will not be completely replaced with advanced meters until 2060 – way beyond the proposed commencement of any post-2025 market design arrangements.
32. While metering service providers face natural incentives to deliver new services to their customers and consequently consumers, the take-up of these services is adversely impacted by the slower-than-expected deployment of advanced meters and a relatively low advanced meter population. The population of advanced meters must reach a critical mass before the market can reasonably expect these new services to be developed and delivered to consumers. For this reason, any barriers that impact the volume of advanced meters deserve immediate attention.

Volumes of metering “Family Failures” released by DNSPs have ‘dried up’

33. The ESB notes that there is “some evidence [that advanced metering] take-up is still mostly limited to new-and-replacement meters”.³
34. Vector Metering’s expectations around advanced meter installation volumes were higher than the volume we are currently installing. Lower-than-anticipated volumes are currently impacting the economics of delivering smart metering services particularly in regional and rural areas. The economies of scale we anticipated have not been reached, resulting in a higher cost to serve per customer than would otherwise be the case.
35. The main area where there is a sizeable shortfall is in the category of “Family Failures” of legacy meters, and their subsequent replacement with advanced meters. Assumptions had been made based on metering replacement programs from pre-Power of Choice network pricing determinations that indicated that an asset life of 20-30 years for legacy metering would logically result, on average, to 3% to 5% replacement programme each year. We saw increased meter replacement volumes in Year 1 of the Power of Choice reforms in metering (2018) but have hardly seen any since.
36. In our view, the very low replacement volumes are largely caused by the smaller-than-expected Family Failures. This removes any flexibility to smooth resourcing needs and results in higher costs in delivering installation services for Customer Initiated work (new connections and Adds & Alts). Lower volumes also reduce the critical mass of advanced meters required to promote the development of new services to and by retailers and other parties.
37. The lack of incentives for DNSPs to maintain a reasonably consistent year-on-year flow of aged meter replacement is adversely impacting the deployment of advanced meters. It appears that relying on (ad hoc) malfunctioning meters will not deliver volumes at reasonable levels. Lower-than-expected deployment and the lack of scale are adversely impacting our ability to drive down costs.
38. The reasons for the very low replacement rate of legacy meters with smart meters are unclear.
 - a. DNSPs may not have the required incentives or controls to continue investing in their testing and maintenance programs, resulting in lower volumes being declared as part of a Failed Family of meters.

³ Page 139 of the consultation paper

- b. Under the *National Electricity Rules* (NER), meters can only fail as a Family based on the results of an accuracy test. It could be that meter replacement programmes undertaken by DNSPs in the past considered factors other than accuracy failures, e.g. likely component failure based on asset age, the desire to ensure an efficient replacement program overall by adding older assets that still generate accurate reports, or the expansion of scale or addition of new technology to help with network management.

Retailers are facing disincentives to accelerate the deployment of advanced meters

39. The inability of retailers to make a case for large-scale retailer-led deployments is another issue impacting the rollout of advanced meters. The transition to advanced metering cannot be accelerated through meter replacements on a piecemeal basis.
40. While the Power of Choice reforms envisaged retailer-led deployment of advanced meters, Vector Metering has seen almost no retailer-led “new meter deployments” (as defined in the NER). While we had not forecast any volumes in this category, the fact that there have almost been none is an indication that retailers are unable to build a business case to support deployment. Current market conditions have developed in such a way that retailers alone carry the cost of deployment even though the benefits from advanced meters are ‘split’ across multiple parties such as DNSPs, third party data access seekers, etc. For example, recent DER regulation in South Australia mandates the installation of more expensive metering, the costs of which are borne by retailers for whom there is no apparent benefit.
41. In our view, the reluctance by retailers to invest in large-scale advanced metering deployment is driven by the cost differential between legacy metering and advanced metering. Under current market conditions, the advanced meter is materially more expensive than the avoided cost of the legacy meter being replaced. A key factor driving this is the removal of upfront fees for a meter installation that the customer was previously required to pay. In many cases, these fees were significant and outrightly recovered the costs of the metering asset. These costs are no longer charged directly to the customer and are now recovered by the retailer over a longer period via annual metering charges. This makes it difficult for retailers to make a business case for replacing legacy meters with advanced meters. As a result, retailers are only deploying advanced meters where the NER requires them to do so, i.e. in the case of New Connections, Adds & Alts, and meter malfunctions.
42. Unrecoverable legacy metering charges and the low volume of advanced meters are driving the costs of advanced meters higher, making the business case for large-scale deployment (or further deployment) unattractive to retailers.

Recent regulatory changes are driving up the costs of advanced metering

43. While the Power of Choice reforms have delivered competition between metering service providers that is driving down the cost of metering services, the delivery of this benefit is being put at risk by recent regulatory changes driving up costs. Examples include mandated metering installation timeframes, requirements around shared fusing, and new obligations under South Australia’s Smarter Homes program.
44. In addition, earlier expectations of uniform and consistent advanced metering requirements across the NEM have not been met. Examples include inconsistent approaches around load control services across networks, inconsistent installation requirements by health and safety regulators, and recent changes to minimum advanced meter specifications in South Australia. These inconsistencies constrain metering service providers’ ability to reduce the price of advanced metering to consumers, and therefore their uptake.
45. Regulatory barriers have also adversely impacted the ongoing deployment of basic advanced metering services. In New South Wales, the moratorium on the use of remote energisation

services has only been recently removed (1 October 2020) and regulation in Queensland is still in place that effectively makes these services impractical.

46. Any additional costs that retailers face for TOU/advanced meters means that for every additional advanced meter deployed, the retailer's margin is effectively eroded, driving retailers to delay the rollout of advanced meters for as long as they can. Furthermore, the implementation of the Data Strategy, and to make advanced meter data available to more parties, metering service providers will incur additional costs. Under current (and future conditions proposed by Energy Networks Australia), the only party that a meter provider will be able to recover its costs from is the retailer, further eroding the retailer business case. This is likely to frustrate the achievement of the objectives of the Data Strategy and other reforms, and the timely delivery of consumer benefits.

The assessment of DER integration expenditures should incentivise the use of existing data sources rather than the creation of redundant systems and processes

47. As a technology solutions company, we support greater levels of renewable DER integration to the grid. We agree with the ESB that there are "opportunities for improved uptake of competitive metering to assist LV visibility" that the AEMC should consider in its upcoming Metering Review.⁴ We agree that "non-network data sources already exist, to a lesser or greater extent in different areas, which do not require dedicated new hardware...[including] data from advanced meters..."⁵ We note that advanced meters could provide DER control as well as data visibility.
48. Vector's submission to the Australian Energy Regulator (AER) on the assessment of DER integration expenditure, dated 20 January 2020, identified factors the AER should consider in developing guidance on what DNSPs should take into account to demonstrate the prudence and efficiency of their proposed DER integration expenditures. This would contribute to optimising the value of DER for all Australian consumers, whether they own DER or not. We reiterate some of those factors below for the ESB's information and consideration.
49. We suggest that to promote more efficient DER integration without imposing onerous costs on consumers, DNSPs should be required to prioritise DER integration expenditures that:
 - a. unlock innovation;
 - b. avoid the duplication of infrastructure or systems;
 - c. facilitate optimal timing for the DNSP's initiative;
 - d. minimise, if not avoid, risks associated with stranded assets;
 - e. are flexible and able to be adapted to changing consumer expectations;
 - f. do not compromise network safety, reliability and resilience; and
 - g. do not impede the entry of other service providers in, and potential entrants to, the market.

Regulatory and other measures are needed to incentivise the accelerated rollout of advanced meters

50. As an enabling technology, advanced meters deliver benefits that are split across various market participants. This 'split incentives' problem needs to be highlighted so that steps can be taken to allocate advanced metering costs efficiently and fairly, rather than the current situation where the costs are borne by a single group of participants (i.e. retailers).
51. In Vector's submission (dated 19 October 2020) on the ESB's *Post-2025 Market Design Consultation Paper*, we propose a set of measures and regulatory changes needed to

⁴ Page 51 of the consultation paper

⁵ Page 37 of the consultation paper

address the above-identified barriers. We believe these will help address the 'split incentives' problem and will benefit all industry participants and consumers, not just retailers and metering service providers.

52. To address the identified barriers to the accelerated rollout of advanced meters, and incentivise the development of innovative products and services, Vector recommends the following broader measures for the consideration of the ESB, as it continues to develop the Data Strategy, and other energy regulators:
- a. rules/reforms that would deliver a higher volume of legacy meters for replacement with advanced meters, e.g. legacy metering assets to be replaced at a targeted minimum rate or introducing a firm age for asset replacement;
 - b. switching away from accuracy-based Family Failure as the only large-scale mechanism to upgrade the legacy metering fleet to a more pro-active and strategic deployment of advanced meters, e.g. allowing DNSPs to determine that a legacy meter can be replaced by an advanced meter for reasons other than a malfunction;
 - c. rules/reforms that would improve the business case for retailers to continue to invest and accelerate retailer-led advanced metering deployments, e.g. removal of unrecoverable legacy metering charges;
 - d. rules that would mandate the upgrade of defective/unsafe metering installations. This issue relates to a Metering Coordinator's or retailer's lack of authority to require a customer to address defects and 'non-compliances' at the customer's site that prevent a meter installation from proceeding. Current rules do not give the Metering Coordinator any mechanism to require the customer to resolve site-related issues. Vector Metering has a growing number of sites (in the thousands) with this issue;
 - e. requirement on DNSPs to consider the use of existing data sources and service providers in integrating DER into their network prior to building new systems, avoiding duplication and 'stranded assets';
 - f. adjustments in retailers' Default Market Offer (DMO) to reflect higher metering costs incurred by retailers for advanced meters. This supports the DMO objective of "not disincentivising competition, innovation and investment by retailers, and retaining incentives for consumers to engage in the market";
 - g. changes to the *Competition and Consumer (Industry Code – Electricity Retail) Regulations 2019* (DMO Regulations) that would allow the AER to make a separate annual price or model for customers with advanced meters, including one-off fees or fees for a service provided upon request. We note that the *Competition in Metering Rule* mandates the installation of an advanced meter for new connections, customer-initiated upgrades, and 'family failures' regardless of whether a TOU tariff is applied. Not supporting cost recovery from TOU customers discourages the adoption of cost reflective TOU tariffs, a key aspect of demand management and ultimately, security of supply;
 - h. a separate DMO price for solar customers, who are no longer a trivial proportion of electricity consumers, with market penetration rates exceeding 20% in some areas;
 - i. in recognition of the 'split incentives' issue, a move towards an environment that supports cost recovery shared across all beneficiaries of advanced meters, rather than just from a single party, e.g. innovative solutions such as a 'network tariff discount' for retailers for sites with advanced meters where DNSPs are receiving a benefit;

- j. rules that would improve consistency in the implementation of the national competitive metering framework across jurisdictions, to reduce compliance costs and confusion; and
 - k. expanding the competitive metering market by 'opening up' metering markets in jurisdictions that do not have multiple/competitive metering service providers, e.g. the metering markets in Victoria and Western Australia.
53. By addressing the identified barriers, the above measures will help provide energy sector stakeholders greater certainty around advanced meter uptakes, enabling them to make more informed planning and investment decisions as they transition into a digital energy future.

Concluding comments

54. We encourage the ESB to discuss our recommendations with the AEMC as part of the AEMC's upcoming Metering Market Review. We trust this process will lead to the development of options to address the above-identified barriers and help ensure the benefits of a competitive metering market are delivered to consumers in a timely manner.
55. We are happy to provide further information to support this submission or discuss any aspects of it with the ESB as it further develops the Data Strategy. Please contact Paul Greenwood (Industry Development Australia - Vector Metering) at tel: 0404 046 613 or Paul.Greenwood@vectorams.com.au.
56. No part of this submission is confidential, and we are happy for the AEMC to publish it in its entirety.

Yours sincerely



Mitch Webster
General Manager – Commercial and Service Development
Vector Metering